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FALL WATER SUPPLY SUMMARY FOR NEVADA

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and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS
UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE,
and
NEVADA DEPARTMENT of CONSERVATION and NATURAL RESOURCES
DIVISION of WATER RESOURCES

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed on the last page of this report.

AS OF
OCT. 1, 1969

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85205
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80521
Idaho	P. O. Box 38, Boise, Idaho 83707
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR NEVADA

and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Issued by

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In Cooperation with

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FALL WATER SUPPLY SUMMARY

FOR NEVADA

October 1, 1969

Nineteen sixty-nine proved to be a record snow year in the Sierra Nevada Mountains, as well as in many other areas throughout Nevada. January and early February storms were extremely heavy. In fact, many of the ski areas in the Sierra Nevada Range whose managers are usually hoping for more snow suffered from too much this year. Many areas had their lifts buried and were temporarily closed due to the abundant snowfall.

Some buildings located above the Lake Tahoe area, as well as other mountain valleys in the Sierra Nevada Mountains, had roof failures from snow loads ranging to 415 pounds per square foot this season.

The record snowpack produced abundant streamflow this past summer. As forecast, the streamflow generally ranged from 200 to 300 percent of normal. Due to accurate forecasts of the streamflow production for the coming season and favorable weather conditions (warm days and freezing nights) during the peak runoff period, very little flooding was experienced.

Water users depending on natural flow experienced one of the best supplies in history. Reservoirs were used more as flood preventive devices rather than in their more typical role as irrigation suppliers this year. Storage remaining in Nevada's reservoirs is much above normal and well above the amount at this time last year.

This year's forecasts were very accurate in predicting streamflow with most forecasts well within ten percent of the actual flow. The past two seasons exemplify the use and need of accurate streamflow forecasts on Nevada's streams. The 1968 water year produced extremely low streamflow typified by the Owyhee and Humboldt drainages at 9 percent and 47 percent of average respectively. Contrary to 1968, the 1969 water year produced record streamflow on many streams originating in the Sierra Nevada Mountains.

Mountain soil moisture conditions vary widely this fall. The lower and median elevation soils have dried out due to the very dry summer and early fall. However, the high elevation soils are still wet, largely due to the remaining snowpack in the high elevations. Some of the very high mountain snowpack will remain year around this year.

The last six pages of this report contain daily water content values of the 1969 snowpack in the Sierra Nevada Range.

APRIL-JULY 1969
NEVADA STREAMFLOW FORECASTS
and
OBSERVED STREAMFLOW

The following table contains April-July forecasts made during the past winter, except as otherwise noted. Observed streamflow amounts are provisional and were furnished by the U. S. Geological Survey and other agencies.

FORECAST STREAMS	April-July Streamflow, Thousand Acre-Feet							
	Forecast				Observed	15-Yr. Av.	Observed	
	Feb.	Mar.	Apr.	May	Apr-July 1969		1969	as % 15-Yr. Av.
	1 1969	1 1969	1 1969	1 1969				
Owyhee near Gold Creek, Nevada ¹	26	32	35	35	40	16	250	
Owyhee near Owyhee, Nevada ¹	107	124	125	112	123	60	207	
Lamoille Creek near Lamoille, Nev.		35	35	33	30	25	120	
S. Fork Humboldt near Elko, Nev.		115	115	113	89	58	153	
Marys River above Hot Springs, Nevada		52	52	49	59	28	211	
N. Fork Humboldt at Devils Gate, Nevada		50	52	52	No record	26	-	
Humboldt at Palisade, Nev.	262	320	310	321	363	154	236	
Humboldt at Comus, Nev.		230	245	249	334	110	304	
Martin Creek near Paradise, Nev.		32	35	35	38	14	200	
E. Walker near Bridgeport, Calif. ²		175	175	191	225	60	375	
W. Walker below Little Walker near Coleville, California	228	290	290	298	295	143	206	
E. Carson near Gardnerville, Nev.		375	365	369	394	175	225	
E. Carson near Gardnerville, Nev. (Date of 200 c.f.s. flow)		8/24	8/23	8/23	8/21	7/23		
W. Carson at Woodfords, Calif.		110	110	110	104	51	204	
Carson near Carson City, Nev.		440	440	438	434	166	261	
Carson near Ft. Churchill, Nev.		440	440	443	430	150	287	
Little Truckee above Boca, Calif.		175	181	184	193	81	238	
Truckee at Farad, Calif. ¹		.573	.550	.554	.557	.258	.216	
Lake Tahoe ³		3.00	2.90	2.90	3.22	1.39	2.32	

1. Corrected for storage above station.

2. For period April through August, corrected for storage.

3. Maximum rise, in feet, from April 1, assuming gates closed.

NEVADA
STATUS OF RESERVOIR STORAGE
October 1, 1969

BASIN and Stream	RESERVOIR	USABLE CAPACITY (1000 AF)	USABLE STORAGE - 1000 ACRE-FEET			
			1969	1968	1967	15-Yr. AVERAGE 1953-67
Owyhee	Wild Horse	33	8	0 *	4	12
Lower Humboldt	Rye Patch	179	170	17	57	58
Colorado	Mohave	1,810	1,436	1,393	1,402	1,413
Colorado	Mead	27,217	16,135	15,018	14,375	16,905
Tahoe	Tahoe	732	580	514	606	436
Truckee	Boca	41	22	13	26	10
Truckee	Prosser	29 **	20	12	19	Storage began 1/30/63
Carson	Lahontan	286	165	90	202	109
West Walker	Topaz	59	32	8	41	17
East Walker	Bridgeport	42	22	7	29	14

* Reservoir drained during summer for construction.

** Flood control use allocation of 20,000 acre-feet between November 1 and April 10.

NEVADA

SOIL MOISTURE

October 1, 1969

STATION	Elevation	PROFILE (Inches)		Date	SOIL MOISTURE (Inches)		
		Depth	Capacity		This Year	Last Year	2 Years Ago
<u>EAST SLOPE SIERRA</u>							
Independence Camp	7000	34	6.10	9/18	1.8	3.4	3.1
Hagans Meadow	8000	36	3.65	9/5	1.7	0.0	0.4
Marlette Lake	8000	50	3.70	9/5	0.4	0.6	1.2
Truckee #2	6400	18	3.65	9/4	0.6	0.0	0.6
Ward Creek	7000	49	5.80	9/4	0.7	0.6	1.1
Sonora Pass	8800	48	8.30	8/29	2.8	NS	7.4
Virginia Lake ¹	9200	40	5.00	8/29	0.8	-	-
<u>HUMBOLDT BASIN</u>							
Rodeo Flat	6800	42	11.0	9/17	8.3	10.5	9.9
<u>OWYHEE BASIN</u>							
Big Bend	6700	48	16.70	9/23	13.4	15.8	15.0
Jack Creek, Lower	6800	48	8.70	9/18	6.4	7.8	7.3
Taylor Canyon	6200	48	15.0	9/18	9.5	12.6	11.3

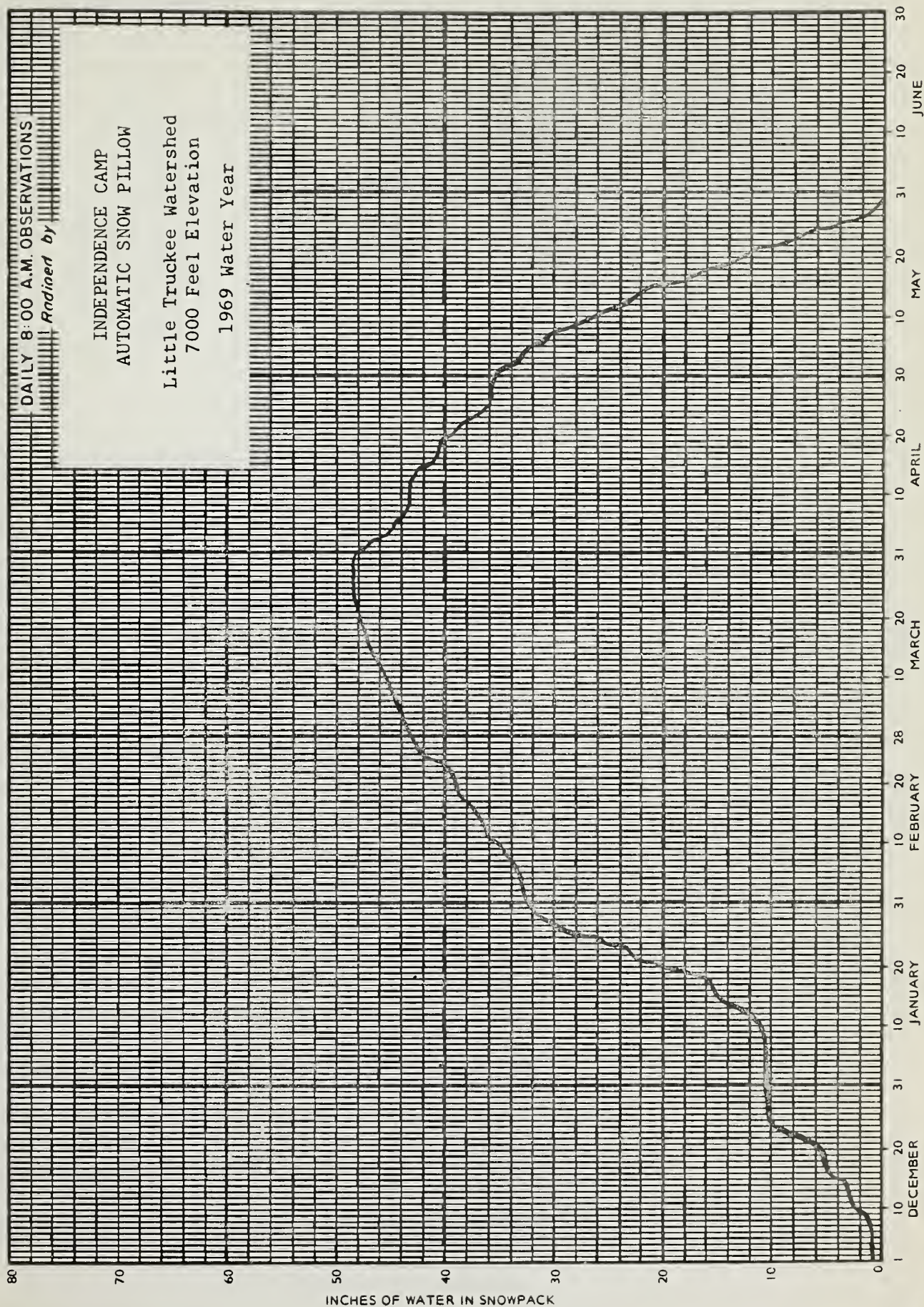
NS Not Surveyed

1. New Location

U.S.D.A. SOIL CONSERVATION SERVICE DAILY RADIO REPORTS BY AUTOMATIC SNOW MEASURING STATION

DAILY 8:00 A.M. OBSERVATIONS
Revised by

INDEPENDENCE CAMP
 AUTOMATIC SNOW PILLOW
 Little Truckee Watershed
 7000 Feet Elevation
 1969 Water Year

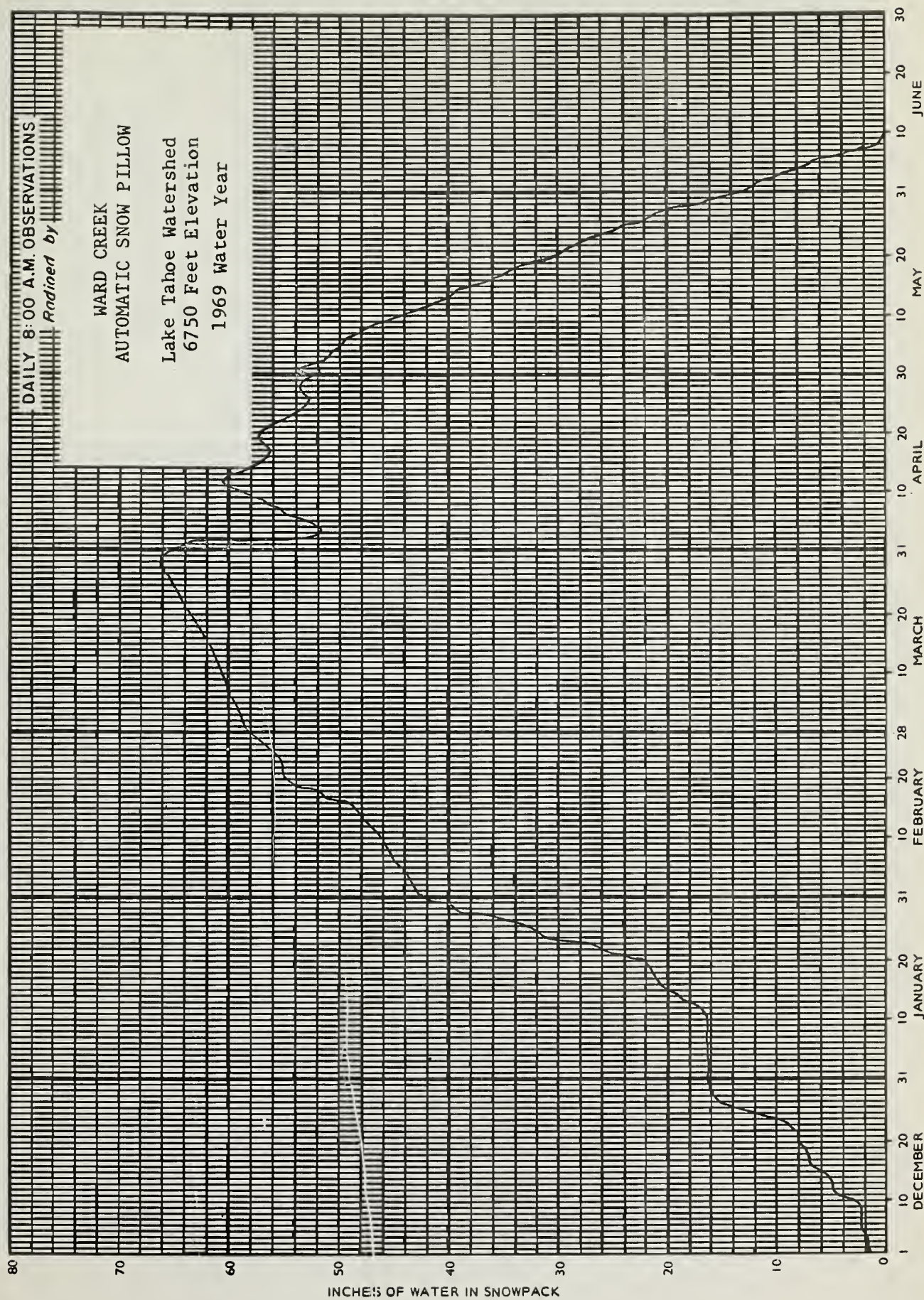


INCHES OF WATER IN SNOWPACK

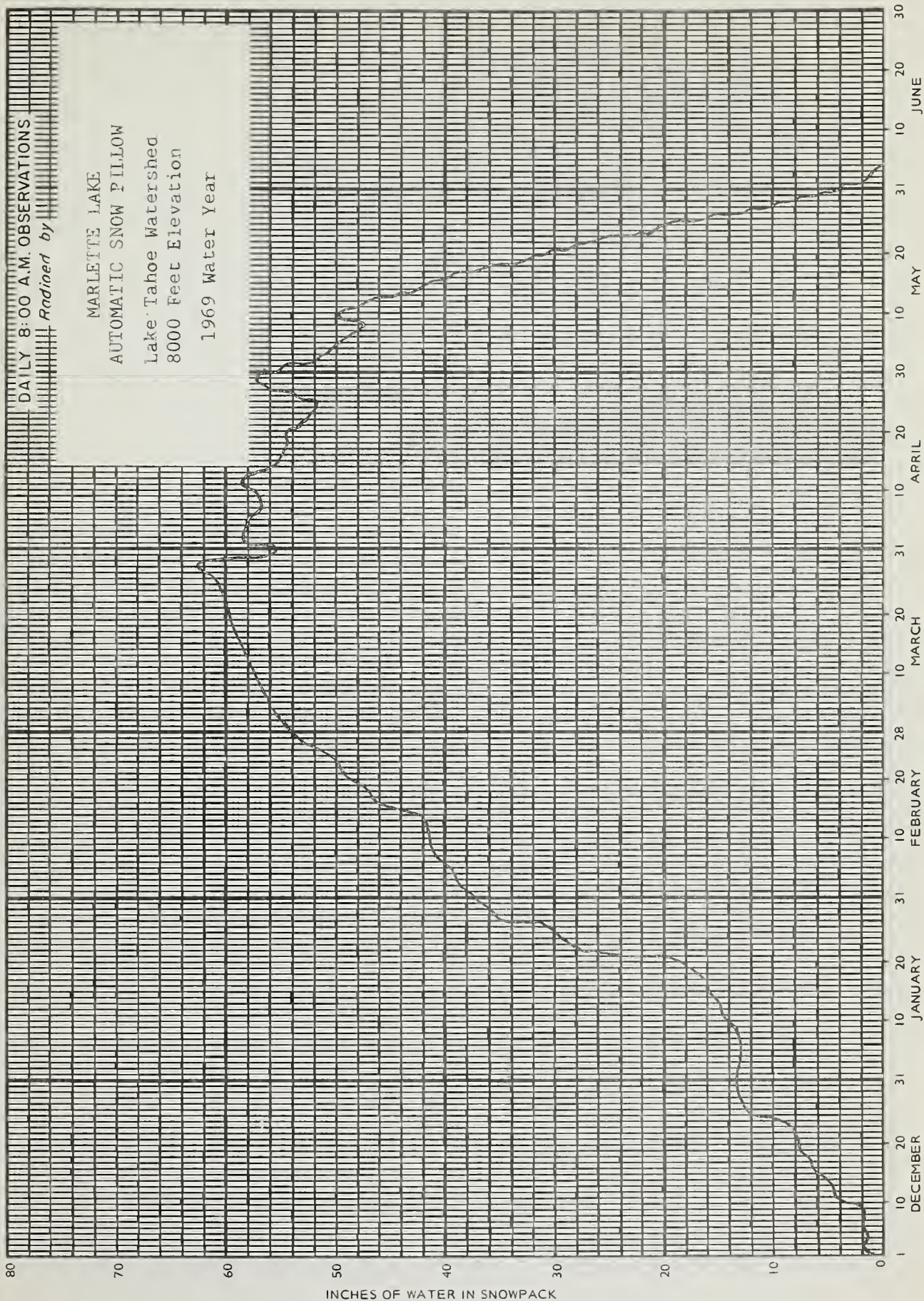
U.S.D.A. SOIL CONSERVATION SERVICE DAILY RADIO REPORTS BY AUTOMATIC SNOW MEASURING STATION

DAILY 8:00 A.M. OBSERVATIONS
Redlined by

WARD CREEK
 AUTOMATIC SNOW PILLOW
 Lake Tahoe Watershed
 6750 Feet Elevation
 1969 Water Year



U.S.D.A. SOIL CONSERVATION SERVICE DAILY RADIO REPORTS BY AUTOMATIC SNOW MEASURING STATION



U.S.D.A. SOIL CONSERVATION SERVICE DAILY RADIO REPORTS BY AUTOMATIC SNOW MEASURING STATION

DAILY 8:00 A.M. OBSERVATIONS

Redlined by

HAGANS MEADOW

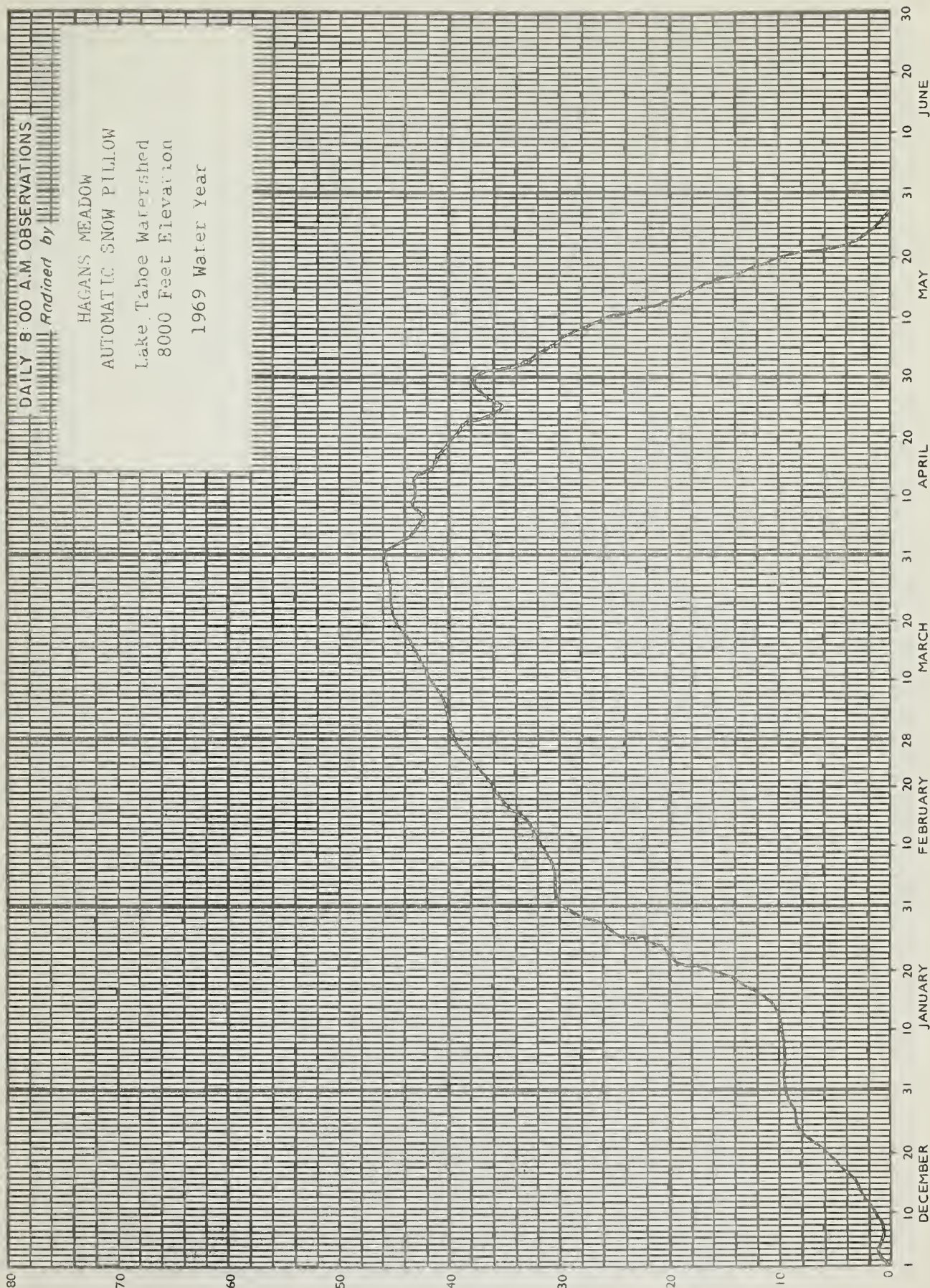
AUTOMATIC SNOW PILLOW

Lake Tahoe Watershed

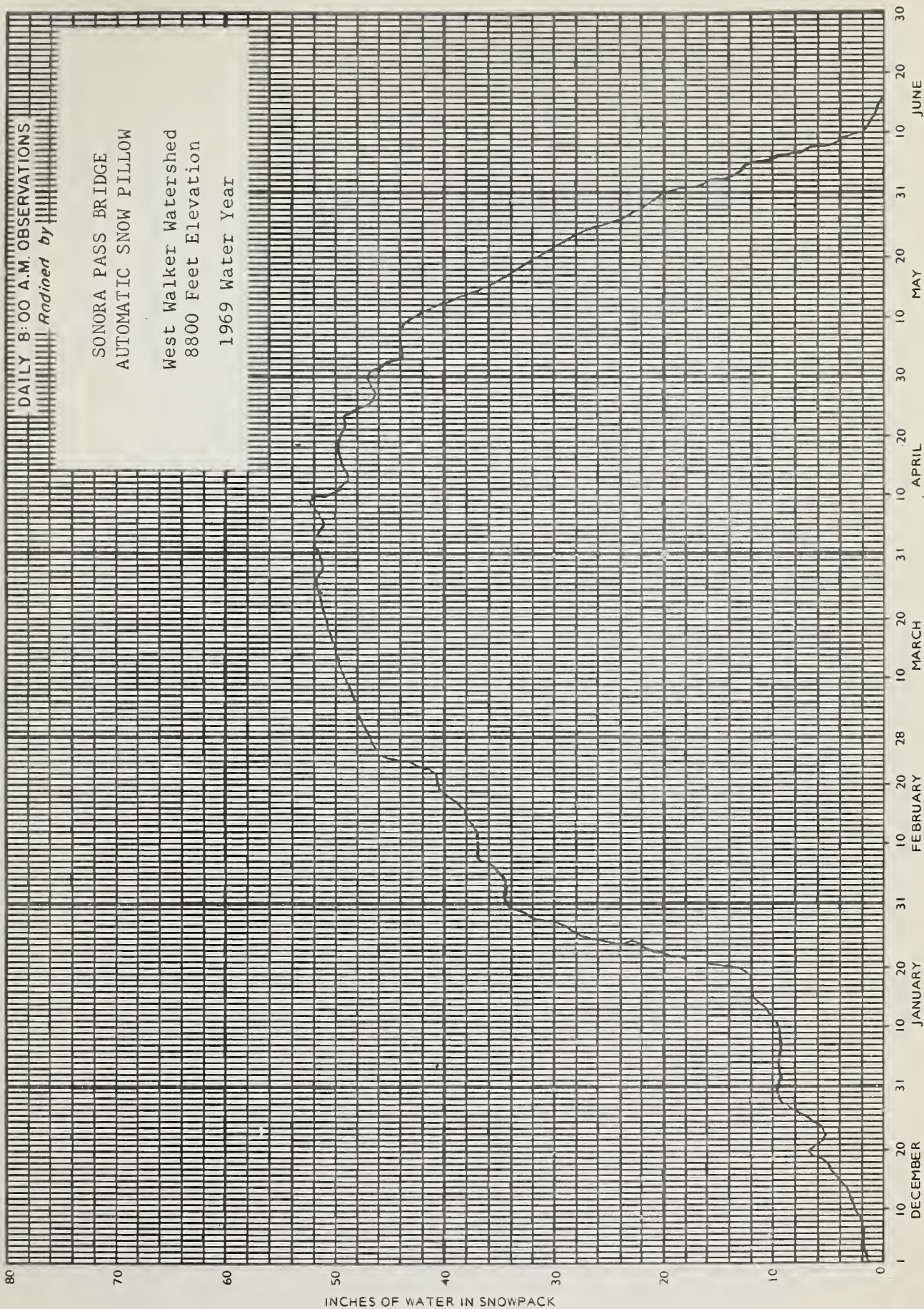
8000 Feet Elevation

1969 Water Year

INCHES OF WATER IN SNOWPACK



U.S.D.A. SOIL CONSERVATION SERVICE DAILY RADIO REPORTS BY AUTOMATIC SNOW MEASURING STATION



U.S.D.A. SOIL CONSERVATION SERVICE DAILY RADIO REPORTS BY AUTOMATIC SNOW MEASURING STATION

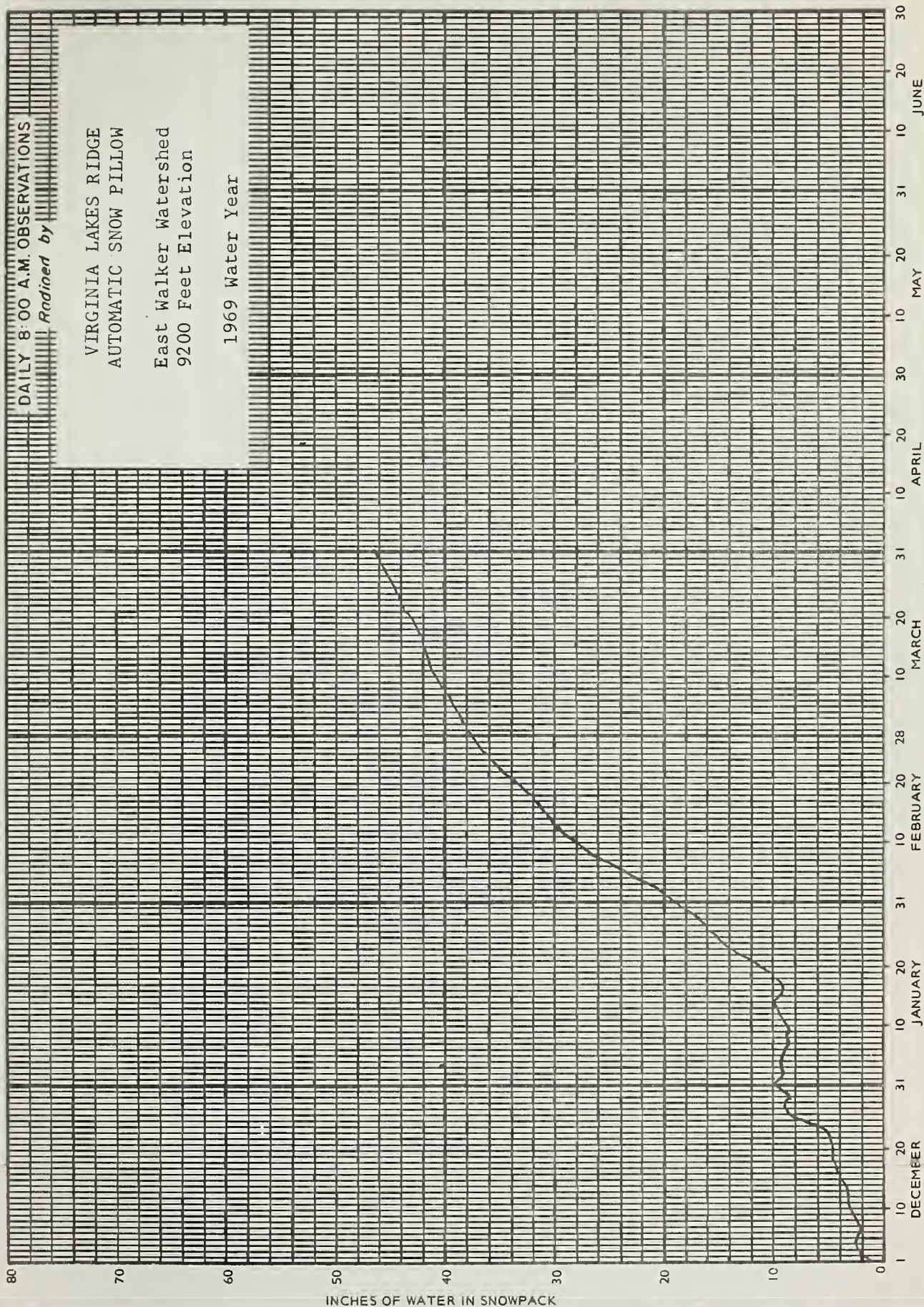
DAILY 8:00 A.M. OBSERVATIONS

Radioed by

VIRGINIA LAKES RIDGE
AUTOMATIC SNOW PILLOW

East Walker Watershed
9200 Feet Elevation

1969 Water Year



INCHES OF WATER IN SNOWPACK

Agencies Cooperating in Collecting Data Contained in this Bulletin

FEDERAL

- Agricultural Research Service
- Army
- Bureau of Reclamation
- Fish and Wildlife Service
- Forest Service
- Geological Survey
- Navy
- Soil Conservation Service
- U.S. District Court - Federal Water Master
- Weather Bureau

STATE

- California Cooperative Snow Surveys
- California Department of Parks and Recreation
- California Department of Water Resources
- Colorado River Commission of Nevada
- Nevada Association of Soil Conservation Districts
- Nevada Cooperative Snow Surveys
- Nevada Department of Conservation & Natural Resources
 - Division of Water Resources
 - Nevada State Forester-Firewarden
- Oregon Cooperative Snow Surveys
- University of Nevada
- White Mountain Research Station, Univ. of California

PRIVATE

- Amalgamated Sugar Company
- Kennecott Copper Corporation
- Nevada Irrigation District
- Owyhee Project North Board of Control
- Owyhee Project South Board of Control
- Pacific Gas & Electric Company
- Pershing County Water Conservation District
- Sierra Pacific Power Company
- Squaw Valley Development Company
- Truckee-Carson Irrigation District
- Virginia City Water Company
- Walker River Irrigation District
- Washoe County Water Conservation District

Other organizations and individuals furnish valuable information for the snow survey reports. Their Cooperation is gratefully acknowledged.

UNITED STATES DEPARTMENT OF AGRICULTURE
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RENO, NEVADA 89505

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*"The Conservation of Water begins
with the Snow Survey"*